

CLAIMS

1. A printed circuit board for use in an endoscope comprising:
a base portion of the printed circuit board configured to reside within a handle of the endoscope;
wherein one or more elongate extension portions of the printed circuit board are configured to extend from the base portion of the printed circuit board in the handle through a shaft of the endoscope, and terminating at a distal insertion end of the shaft;
and wherein the base portion of the printed circuit board comprises a sensor configured to detect a rotational position of the printed circuit board with respect to the handle.
2. The printed circuit board of claim 1, wherein the base portion is a composite of a flexible board mated to a rigid board, and wherein at least one of the one or more extension portions comprises a flexible board extension.
3. The printed circuit board of claim 1, wherein the base portion is a composite of a flexible board mated to a rigid board, and wherein at least one of the one or more extension portions comprises a rigid board extension.
4. The printed circuit board of claim 1, wherein the base portion is a composite of a flexible board mated to a rigid board, and wherein a first one of the one or more extension portions comprises a flexible board extension, and a second one of the one or more extension portions comprises a rigid board extension.
5. The printed circuit board of claim 4, wherein the flexible board extension and the rigid board extension emerge from the base portion adjacent to each other, wherein a proximal leg of the flexible board extension extends away from the rigid board extension at an angle of approximately 90 degrees from the rigid board extension, and wherein a distal leg of the flexible board extension extends away from the base portion parallel to the rigid board extension.

6. The printed circuit board of claim 5, wherein the proximal leg of the flexible board extension is folded to permit the distal leg of the flexible board extension to be aligned parallel to and adjacent to the rigid board extension through the shaft of the endoscope.
7. The printed circuit board of claim 4, wherein the rigid board extension and the flexible board extension extend through a lumen of the endoscope shaft.
8. The printed circuit board of claim 7, wherein the base portion of the printed circuit board, the rigid board extension, and the flexible board extension are coated with a water resistant coating or membrane.
9. The printed circuit board of claim 8, wherein the rigid board extension and the flexible board extension extend through a fluid-carrying lumen of the endoscope shaft.
10. The printed circuit board of claim 4, wherein the rigid board extension carries electrical lines connected to one or more light sources at the insertion end of the endoscope shaft.
11. The printed circuit board of claim 4, wherein the flexible board extension carries communication lines connected to an image sensor at the insertion end of the endoscope shaft.
12. The printed circuit board of claim 11, wherein the image sensor is a CCD or CMOS sensor.
13. The printed circuit board of claim 12, wherein the flexible board extension is configured to permit the image sensor to rotate about an axis generally perpendicular to an axis of the endoscope shaft.